

## ABSTRACT OF THE DISCLOSURE

The invention discloses an on-line dispersion compensation device for a wavelength division optical transmission system. The device is consisted of two optical path selectors and at least one chirped grating fiber unit. The chirped grating fiber unit is consisted of two chirped grating fibers with same wavelength band and connected oppositely. In addition, the chirped grating fiber unit is serially connected between the appropriate ports of the two optical path selectors. The invention applies a structure that combines a chirped grating fiber unit with two optical path selectors. The structure is suitable to on-line dispersion compensation in a DWDM system and has low insertion loss. When only a few wavelengths need to be compensated, the structure makes dispersion compensation with low cost, low insertion loss and compensating a large dispersion value. For single channel or broadband compensation, the invention provides dispersion compensation without through OADM or MUX/DEMUX filtering. For an urban area network system with rare high-speed service, the invention provides a low cost solution for dispersion compensation, and the structure of the device is suitable for structure design of the integrated waveguide dispersion compensation.